Shropshire Botanical Society Newsletter, Autumn 2013

Orobanche minor Common Broomrape on shrubby Senecio (*Brachyglottis greyi)* Ruth Dawes, 2013.

Shropshire Botanical Society Newsletter No.27

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Society Matters Mags Cousins

At last we can say what a lovely summer for recording, I hope you all managed to see some good plants.

First the committee news, at the Society AGM in April we agreed a simplification on the constitution so that the chair and elected committee members would all serve for three years and then stand for re-election. We duly elected/re-elected the following: Penny Wysome (as Secretary), Hilary Wallace (special welcome as a new committee member), Sue Townsend (to continue as our able Treasurer) and Dan Wrench who will be coordinating field meetings having taken over from Fiona Gomershall who has other commitments. Many thanks to Fiona for the last 7 years for her enthusiasm and many interesting outings.

Also currently on the committee are John Handley (committee member), Ian Trueman (Chair), Sarah Whild (Vice county Recorder for Vascular Plants), Mags Cousins (Newsletter Editor) and Mark Duffell (Membership Secretary). Huge thanks to all the committee members past and present for all their contributions. It is only with their help that our Society can exist as it is. If anyone would like to get involved, please do not hesitate to contact one of us. Meetings are infrequent, usually only 3 per year and are very informal.

On the financial side a very big thank you to Shropshire Wildlife Trust for £750 in grant money to help to the Society cover essential costs and in the production of the newsletter.

The eagerly awaited all new updated Flora of Shropshire will be available by Christmas so please contact Sue (sue.t@field-studies-council.org) to place your pre-publication offer: £25 to members or a special offer of £30 to include Rare Plants of Shropshire and The Ecological Flora of Shropshire (not including postage!).

In this edition of the newsletter we continue the series on grasses, learn more about management on Prees Heath Butterfly Conservation Reserve, dive into the water quality and aquatic plants of Crose Mere SSSI and take a look at the lovely Yellow Bartsia (see back cover).

Winter Meeting **Saturday 14th December 2013, 2-4 pm**

As usual we will be meeting for a festive social, fundraising book sale (bring your 'preloved' natural history books) and talk at Preston Montford Field Studies Centre, Montford Bridge, Shrewsbury, SY4 1DX. This year Dr Tim Rich will be giving a talk on the identification of critical species:

"I don't want to be critical, but..."

Tim is Head of Vascular Plants at the Welsh National Herbarium, National Museum of Wales, Cardiff.

Recorder's Report

Alex Lockton & Sarah Whild

Significant records

A solitary *Pyrus salicifolia* Pallas, **Willow-leaved Pear**, by the A442 at Peplow (SJ633228) has intrigued various recorders, who have wondered if it was possibly self-sown. This question appears to have been answered by Philip Ingram, who noticed that leaves on shoots near the trunk are ordinary pear leaves, which suggests that it has been grafted and therefore planted.

At Badger Dingle (SO765992) on 15th June, Mags Cousins spotted a single plant of *Cardamine impatiens* L., **Narrow-leaved Bitter-cress**, which brings the number of recent sites for this species to six.

Steve O'Donnell noticed a patch of *Lepidium latifolium* L., **Dittander**, on a road side at Sandford (SJ584340, 29th July). This is a nationally scarce coastal plant which seems to be increasing on waste ground inland.

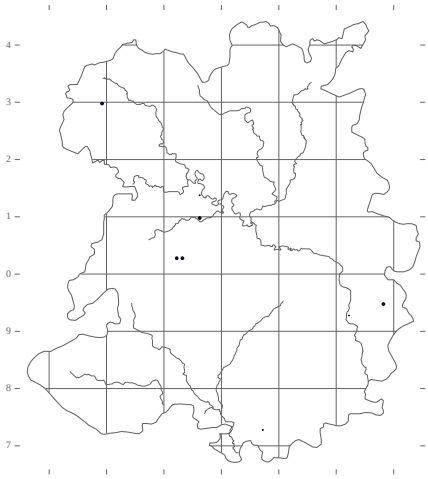
Seven years ago, Dan Wrench took a photograph of a mysterious plant at Treflach Quarry (SJ259258, 30/4/2006) which he looked at again recently and realised it was the rare **Wall Whitlowgrass**, *Draba muralis* L., making a second site for it in the county. This is almost a splendid example of record-keeping, although Dan admits that there is a narrow chance that the site could in fact have been Dolgoch Quarry. Better look out for it again in both sites next year!

Draba muralis at Treflach Quarry (D.H. Wrench)

During the BSBI Recorders' Conference (8th September), Quentin Groom noticed an unusual-looking dock by the Severn in the Quarry, Shrewsbury (SJ485126). Martyn Stead named it as *Rumex* ×*dufftii* (*obtusifolius* × *sanguineus*), which was subsequently confirmed by Geoffrey Kitchener. This is the first confirmed record of what is probably a fairly common hybrid.

Keith Bell spotted a plant of *Verbascum blattaria* L., **Moth Mullein**, on a roadside at Lyth Hill in August 2013. This plant has not been recorded in the county since 1979.

Quentin Groom also noticed a few dead spikes of a broomrape which experts agreed was *Orobanche hederae* Duby, **Ivy Broomrape**, in a shrubbery by a new housing development at Benbow Quay (SJ49301325, 7th September). This is a first county record of a native plant that is normally found in coastal areas.



Orobanche minor in Shropshire

Meanwhile *Orobanche minor* Sm., **Common Broomrape**, turned up in some abundance in shrubberies at a supermarket in Oswestry (SJ292295 & SJ293295, Dan Knight, 6th July), where it has evidently been present for several years. It was identified by F.J. Rumsey from photographs forwarded by Ruth Dawes (see front cover). This is the fifth site for it since Sinker's Flora.

Another find by Keith Bell was the first record of *Echinops bannaticus* Rochel ex Schrad., **Blue Globe-thistle**, on a roadside verge at Lyth Hill (SJ472068, 18th August), the common globe-thistle usually found in gardens.

Bath Asparagus, *Ornithogalum pyrenaicum* L., is sometimes considered to be native in Somerset and Wiltshire, where it occurs on the verges of green lanes. It is also sometimes grown in gardens. It was recorded in a wood at Apley in about 1800 by Edward Williams but not again until 2011, when it was spotted by Nick Robinson, a National Trust ranger, by the Jack Mytton Way at Rushbury (SO516917). The habitat is the same at that in its supposedly native range further south, so it could be considered native here, too.

Carex ×*boenninghausiana* Weihe (*paniculata* × *remota*) turned up at Crose Mere (SJ426306, Lockton, 22nd June), where it occurs in W5 *Alnus glutinosa* woodland with both parents. This is only the third recent site for it in the county.

Ornithogalum pyrenaicum at Rushbury (N. Robinson)

Dan Wrench found a couple of clumps of *Poa chaixii* Vill., **Broad-leaved Meadow-grass**, in amenity woodland at the north end of the Mere, Ellesmere (SJ405354, 2nd August). The only other site for it in the county is at Pontesford Hill, where it was first recorded by Sinker in 1962.

The following have sent in records so far this year, but there are undoubtedly many still to come.

Bell, Mr K.K.	20	Ingram, Mr P.	1	Rich, Dr T.C.G.	1
Brooks, Ms V.	227	Kay, Mr G.M.	2	Robinson, Mr N.	1
Clayfield, Mr J.	251	Kitchener, Mr G.D.	1	Rumsey, Dr F.J.	3
Cousins, Mrs M.	3	Knight, Mr D.	2	Sanders, Mr A.	21
Dawes, Mr A.P.	13	Langdon, Miss C.	69	Stead, Mr M.O.	1
Dawes, Mrs R.A.	23	Lee, Ms P.	38	Stephens, Ms A.	2
Duffell, Mr M.S.	3	Liffen, Mr C.	1	Swindells, Mrs S.	11
Duffell, Mrs J.	1	Little, Ms C.	1	Townsend, Ms S.	83
Evans, Mr D.J.	1	Lockton, Mr A.J.	291	Whild, Dr S.J.	4
Groom, Dr Q.J.	21	Mobarak, Miss J.	1	Winder, Mr J.	12
Handley, Mr J.	1575	Morris, Dr J.	1	Worrell, Dr J.	1
Holland, Mr T.	15	O'Donnell, Dr S.	2	Wrench, Mr D.H.	84
Holmes, Mr N.T.H.	3	Parry, Dr G.	1		

Summary of Field Visits 2013

Penny Wysome

We offered 7 visits this year to a lovely variety of sites and those attending experienced some excellent habitats and saw interesting and unusual plants. Everyone is welcome – no specialist knowledge is required as there are always plenty of botanists to help out those of us with developing id skills.

The season started **at Caynham Camp Ploughnhill Farm** where Fiona Gomersall lead the exploration of a new wildlife site which had not previously been surveyed. Fuelled by Battenberg cake supplied by the owners, we enjoyed finding two areas of woodland with rich ground floras which are now prospective wildlife sites. Besides the *Paris quadrifolia* Herb Paris which was one of the targets for the day, there was also *Stachys officinalis* Betony, *Euonymus europaeus* Spindle, *Melica uniflora* Wood Melick, *Milium effusum* Wood Millet, both *Polystichum aculeatum* and *Polystichum setiferum,* Hard and Soft Shield Ferns, *Viola reichenbachiana* Early Dog Violet and *Euphorbia amygdaloides* Wood Spurge. The grassland yielded a mixture of mesotrophic grassland species *Carex caryophyllea* Spring Sedge, *Carex panicea* Carnation Sedge, *Centaurea nigra* Common Knapweed, *Lathyrus pratensis* Meadow Vetchling, *Scorzonera hispidus* Rough Hawkbit, *Linum cathartiuma* Fairy Flax, *Leucanthmum vulgaris* Ox-eye Daisy, *Pimpinella saxifraga* Burnet Saxifrage, *Potentilla repens* Tormentil, *Rhinanthus minor* Yellow rattle and *Lotus corniculatus* Common Birds-foot-trefoil. The highlight was finding *Potentilla argentea* Hoary Cinquefoil.

Onslow Park was visited in June to search the grasslands, woodland, and water bodies of this under-recorded area. The lakes and pools offered the most interesting finds with the larger pool having several macrophytes as well as Swan and Pea Mussels. A stand of Japanese Knotweed *Fallopia japonica* near the boat house sheltered a large colony of Winter Aconite *Eranthis hyemale*, with nearby a menacing patch of Brazilian Rhubarb *Gunnera manicata* restrained behind a fenced off area.

A range of ornamental trees were scattered around the estate including an odd tree near the main house seen at the end of the outing which stumped us in the field but turned out to be *Celtis occidentalis*.

On a rather damper day in mid-June John Handley led an expedition of seven intrepid botanists into the deepest recesses of **Badger Dingle**. The weather improved and we were able to negotiate the muddy paths safely. The Dingle has an exotic mixture of plants, some the legacy of imaginative historical planting, but others with a solid indigenous pedigree. The quest for *Osmunda regalis* Royal Fern and *Serratula tinctoria* Saw-wort was successful, but *Cystopteris fragilis* Brittle Bladder fern and *Vicia sylvatica* Wood Vetch remained elusive. An unexpected discovery by Mags Cousins of *Cardamine impatiens* Narrow-leaved Bitter-cress was some consolation for this. This was a fascinating day in an unusual site which allowed for some gorge walking activity by courageous plant hunters.

The weekend of July 13th/14th offered BotSoc members two visits, one to the **Wyre Forest**, and the other to **Sweat Mere and Crose Mere**. John and Denise Bingham led the walk into the shady woodland on a brilliantly sunny day, accompanied by three other BotSoc members. John's intimate knowledge of the Wyre Forest provided a wonderful insight into the plant communities, with geological and historical context adding to the understanding. The autumn newsletter 2012 contained more information on this area. The significant finds were: *Hypericum androsaemum* Tutsan, *Melica nutans* Mountain Melick, Saw-wort and *Carex Montana* Soft-leaved Sedge. An additional treat was to see Silver-washed Fritillaries *Argynnis paphia*.

Four members joined Chris Walker for his look at wetland habitats on Sweat Mere and Crose Mere SSSI. *Scutulleria galericulata* Skullcap, *Hydrocotyle vulgaris* Marsh Pennywort and *Caltha palustris* Marsh Marigold were all in the tall herb fen adjacent to the mere. The edge of the lake gave us *Cladium mariscus* Great Fen sedge, as well as nine *Carex* species. Unfortunately we did not find *Sagina nodosa* Knotted Pearlwort. Some convenient Alder stumps gave us a dry dung free lunch site after which a foray into Sweat Mere was attempted. Here we were in danger of having to claim on our insurance for loss by immersion of BotSoc members so we retreated without finding *Thelypteris palustris* the Marsh Fern which was our objective. Chris was an illuminating leader with a huge knowledge of the area which he generously shared. John Clayfield should receive a long service award for his attendance at both weekend fixtures.

Sarah Whild's hunt for rare aquatic plants at **Brown Moss SSSI** was also thwarted by water! 10 members set out on a sunny day – but the water table was so high that the shore edge was still immersed making recording of the rare aquatic plants found in the drawdown zone and shallow water, on a 10m grid impossible. The liverwort *Ricciocarpus natans* Purple-fringed Riccia made an appearance in a pool and spectacular display of *Potentilla palustris* Marsh Cinquefoil enlivened the visit. A grass snake seen in Pool 5 turned the party to matters zoological rather than botanical and the whole group went to look at butterflies at Prees Heath.

Morton Pool and Pastures SSSI and Croft Mill Pastures Two sites in one day, the highlight of Morton Pool had to be the blanket of Marsh Fern with a large clump of Royal Fern *Osmunda regalis* to the west of the pool. The pastures also yielded several sedges and Rushes alongside Bristle Club-rush *Isolepis setacea* and Bog Pimpernel *Angallis tenella.* Sadly the ditches had been cleared recently damaging lots of the associated trees including Alder Buckthorn *Frangula alnus* and scooping out large plants of Tufted Sedge *Carex elata.*

Croft Mill Pastures was new to many of us, with its damp marshy fen vegetation with dominant Lesser Pond-sedge *Carex acutiformis* and in one area Wood Club-rush *Scirpus sylvaticus.* A particularly rich area had Water Avens *Geum rivale,* Marsh Hawk's-beard *Crepis paludosa,* Sneezewort *Achillea ptarmica, Caltha palustris,* Brown Sedge *Carex disticha* and *Galium uliginosum* Fen Bedstraw. Despite a search no signs of Globe-flower *Trollius europaeus* could be located.

The Grasses Part 3 – Spike-like Panicles

Ian Trueman

Except for the **spike** inflorescences discussed last time (Autumn 2012 Newsletter), grass inflorescences are almost all **panicles:** *branched*, with spikelets[1] on the end of the branches. However, in a few grasses, the branches are so short that the inflorescence axis *appears* unbranched. These are the **spike-like panicles**. The spikelets are never in the mandatory one or two rows either side of the axis found in the spikes and are usually arranged all around the axis to form a dense cylinder of spikelets (see Figs 5 & 6). You can usually detect the very short stalks to the spikelets with a bit of brutal dissection. If, however, bending an apparently unbranched inflorescence reveals some branches considerably longer than the spikelets, it should be sought amongst the grasses with panicles rather than those with spike-like panicles.

The most marginal species in this context is ***Anthoxanthum odoratum*** **Sweet Vernal-grass** (Fig 1.): Stace calls it a contracted panicle, both Hubbard and Cope & Gray a spike-like panicle. The inflorescence is often somewhat loose or even lobed in outline and occasionally the odd fairly lengthy branch may be found. It is however a very distinctive plant, a medium-sized, broad-leaved grass with a tuft of hairs (but also a marked membranous ligule) where the leaf sheath meets the leaf blade and of course with the wonderful scent of new-mown hay (the chemical; coumarin) when the shoot is crushed. The yellow-green inflorescences appear earlier than those of most grasses and herald the start of the hay fever season. The spikelets are very large: three florets are contained between the two glumes and the longer glume is almost a centimetre long. Particularly late in flowering you may be able to find quite prominent awns, attached at the base of the florets and bent in the middle (kneed or *geniculate*). It tolerates and is often abundant in a wide range of grassland and heathland habitats, from wet to fairly dry, from acid to fairly base-rich, and even shady or lead and zinc contaminated sites. It is however much less common in typical amenity grassland and in residential areas generally, although it is easily introduced in seed mixtures and lawns made with turf. A perennial, there is a very similar rare and decreasing annual neophyte, *Anthoxanthum aristatum*, of arable and sandy places, not I think ever recorded in Shropshire.

Cynosurus cristatus **Crested Dog's-tail** (Figs 2-4.**)** is also a bit unusual in this group. The inflorescence is a tight, cylindrical spike-like panicle but the spikelets are all thrown to one side with the main axis of the panicle clearly visible up one side of the cylinder. Among the clusters of spikelets, completely sterile many-flowered spikelets resembling little feathers cover much chunkier fertile several-flowered spikelets. Florets have short awns on the ends of the lemmas. A small to medium–sized grass found throughout Shropshire, *Cynosurus cristatus* is a constant species in old meadows and pastures and also in semi-improved grassland, on a wide range of soil types. Sometimes, however, you can search a monad all day and only see its

[1] The spikelet is the characteristic cluster of one or more florets, subtended by two sterile chaffy bracts known as glumes, found in grasses. Each floret consists of ovary and three stamens enclosed between two more chaffy bracts known as the lemma and the (usually smaller) palea. Lemmas, and less often glumes and paleas, may bear whisker-like bristles known as awns.

distinctive inflorescence once or twice, sometimes in clearly secondary habitats. There is a longer-awned annual neophyte relative, *Cynosurus echinatus* Rough Dog's-tail, with more ovoid inflorescences, a casual of bare places, once recorded in Shropshire.

Fig. 1 *Anthoxanthum odoratum* x2

Fig. 2 *Cynosurus cristatus* x1/2

Fig. 3 & 4 *Cynosurus cristatus*: two kinds of spikelets x 10

Two main genera of grasses have dense, cylindrical spike-like panicles in which the spikelet consists of a single floret concealed between the two glumes. They are ***Alopecurus* the Foxtails** and ***Pheum* the Cat's-tails or Timothys**. In Figs 5 & 6, the spike-like panicles and the spikelets of the two commonest species, ***Phleum pratense* Timothy** and ***Alopecurus pratensis* Meadow Foxtail** are illustrated. These are both modestly tall grasses, around 1 metre in flower, with the inflorescences around 75 mm. long and 7.5 mm wide. The essential differences are in the spikelet structure and such inflorescences should always be examined carefully since they are often superficially very similar, especially when covered in stamens. However Meadow Foxtail flowers from May and Timothy mainly from July.

Fig. 5 *Phleum pratense* x1/2

Fig. 6 *Alopecurus pratensis* x 1/2

In **genus *Phleum*** the two equal glumes have stiff hairs along the keel like a comb and are abruptly drawn out into short, stiff, tapering awns, giving the flattened spikelet the look of one end of a Mermaids's Purse. The floret within is completely hidden. In **genus *Alopecurus*** the glumes are also keeled, but are uniformly hairy and taper conventionally to a point. The single floret within has a fine awn which in most species protrudes clearly from between the two glumes (Fig. 7).

Fig. 7 Spikelets of *Alopecurus pratensis* (left) *and Phleum pratense* (right) x10

In Shropshire ***Phleum*** is represented by two closely-related native species. The larger is ***Phleum pratense*** **Timothy** and the smaller ***Phleum bertonolii*** **Smaller Cat's-tail**. Both are typically components of neutral grasslands but Timothy consists mainly of many cultivars and often indicates past re-seeding. It is named for Timothy Hansen, who cultivated it widely in America and re-introduced it to UK in the 18th century.

Smaller Cat's-tail grows mainly in old grassland on less fertile sites although it does include cultivars. No single character separates the two (except chromosome number) but they are separable by the combination of features in Table 1.

Table 1 Distinguishing *Phleum pratense* from *P. bertolonii* (from Cope & Gray)

Character	**Phleum pratense**	**Phleum bertolonii**
Plant height	Mostly >70 cm	Mostly <70 cm
Leaf breadth	Mostly >4 mm	Mostly < 5 mm
Anther length	Mostly >1.7 mm	Mostly <1.7 mm
Panicle breadth	Mostly >7 mm	Mostly <7 mm

Length of spikelet + awns	Mostly >4 mm	Mostly <4 mm
Length of awn	Mostly 1.2 mm or more	Mostly less than 1.0 mm
Chromosome number	2n = 42	2n = 14

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There are other species in sand dunes (*P. arenarium*), the Brecklands (*P. phleoides*) and mountains (*P. alpinum*) which are not known in Shropshire.

There are four **species of *Alopecurus*** known from Shropshire (plus one other coastal (*A. bulbosus*) and one alpine (*A.magellanicus*) not known here). ***Alopecurus pratensis* Meadow Foxtail** is the largest and commonest. It grows as a perennial grassland plant and also lurks in many marginal habitats. It likes moist, heavy soil and avoids acid sites. ***Alopecurus geniculatus* Marsh Foxtail** is a smaller perennial (typically 20-30 cm in flower) and is made up of prostrate stems rooting at the nodes. These turn upwards abruptly at a node when flowering, giving a very typical 'kneed' appearance. The spike-like panicles are smaller than those of Meadow Foxtail, although sizes overlap, and the glumes of an individual spikelet are blunt not pointed and much more shortly hairy. It is very common in winter-flooded places from the muddy edges of ponds to wet arable land, usually in sites at least modestly nutrient- and base-rich. ***Alopecurus aequalis* Orange Foxtail** (Fig. 8) is a Shropshire axiophyte found characteristically in the draw-down zones of ponds. It is an annual or short-lived perennial and can remain in the seed bank for many years should water levels remain high. It is similar in scale to Marsh Foxtail, if rather more delicate, and is distinguished by its pale, glaucous stems and anthers opening bright orange. However the anthers of Marsh Foxtail can be pretty orangey-brown and you should bend the inflorescence and look for awns – they are very short and do not protrude from the spikelet in Orange Foxtail. ***Alopecurus myosuroides* Black-grass** (Fig. 9**)** is an annual of open, disturbed situations which became a dreaded weed of cereal crops in SE England due to the use of selective weedkillers. Up to 90 cm tall and erect, it produces spike-like panicles which are relatively longer and narrower than in the other species, giving it a more streamlined look. The glumes are narrowly winged along the keel and united at the base for at least a third of their length (much more shortly in other species). Scarce in Shropshire, look for it in towns and allotments as well as in arable.

Fig. 8 *Alopecurus aequalis* (D Wrench)

Fig. 9 *Alopecurus myosuroides*

Fig. 10 *Setaria viridis* x1 (Anne Daly)

***Aira praecox* Spring Hair-grass,** the tiny winter annual of drought-liable places in heaths, moorland and on rock outcrops, has spike-like panicles but is unlikely to be mistaken for any of the others. Each spikelet contains two florets, each with quite a long awn arising half way down the lemma.

Two genera of annual and short-lived perennial species adventive in Shropshire also include species with cylindrical spike-like panicles superficially similar to those of *Phleum* and *Alopecurus*. ***Polypogon monspeliensis* Annual Beard-grass** has a cylindrical spike-like panicle covered in long silky awns similar in proportion to those of Meadow Foxtail but the awns are born on both of the glumes not from between the glumes. ***Setaria* the Bristle-grasses** (Fig. 10) include several species with bristly cylindrical spike-like panicles The bristles are however not awns and can easily be seen to arise at the base of the spikelets. There are several species and Stace and Cope & Gray both provide adequate keys. ***Lagurus ovatus* Hare's-tail**, a cultivated annual, has an ovate spike-like panicle rendered beautiful by bristle-like glumes covered in white, silky hairs.

References:

Cope, T. & Gray. (2009) A. *Grasses of the British Isles.* BSBI.

Hubbard, C.E. (1984) *Grasses ed 3* Penguin Books

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Understanding Prees Heath – A Response from Butterfly Conservation

Stephen Lewis

The spring 2013 issue of the Newsletter contained an article entitled 'Understanding Prees Heath' by Alex Lockton. Butterfly Conservation would like to correct factual errors and incorrect assumptions, which will provide a better understanding of our objectives for the management of this important reserve. Quotations from the previous article are in *italics*.

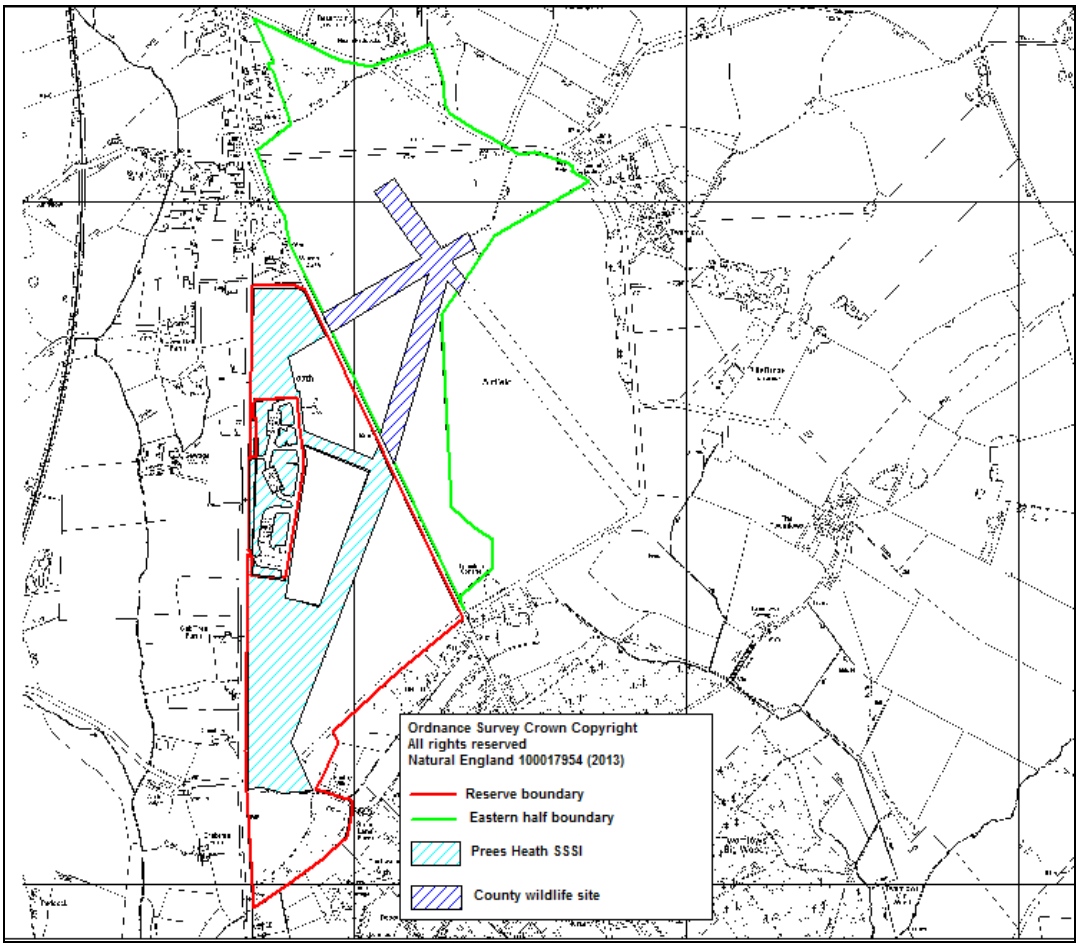
Background

Butterfly Conservation purchased the western half of Prees Heath Common in 2006. Our 60ha reserve, which lies between the A49 and A41 roads, comprises nearly half of the common, also sometimes known as Whitchurch Heath Common. The other half of the common, covering 65ha, lies east of the A41. It is still in the ownership of a company based in the Channel Islands, and most of it remains in arable cultivations, currently growing maize.

'*During the wars it was used as an airfield'*. The airfield was constructed in 1942 during WW2, and known as RAF Tilstock. Before that the common supported an internment camp for 'enemy aliens', and a camp for Italian prisoners of war. In WW1 the common was not an airfield but provided accommodation in wooden huts for around 25,000 men engaged in trench warfare training. After that use the common was restored to heathland, but that was not the case after WW2. Establishing the airfield entailed levelling much of the common along with some adjoining small-holdings with hedges, meadows and dwellings on its south eastern side, and the construction of extensive concrete runaways, service roads, standings hangers and other buildings. The concrete runways, each 50 metres wide, and the perimeter road remained in situ until in the 1970s they were hacked up, mostly crushed on site and removed to build roads. Around this time, as common grazing rights could no longer exercised with unfenced major trunk roads, much of the common was let by the owners on farming tenancies. This led to as much of the ground as possible was being ploughed up to grow crops. This also entailed the application of fertilisers and manures to feed the low-nutrient soils, and from the 1990s onwards very large quantities of waste chicken manure. A lot of the material that had formed the bases of the runways remained in the ground and by preventing the ploughing it provided a refuge for the site's heathland vegetation and fauna, especially the Silver-studded Blue butterfly, *Plebejus argus*.

'...it is a Site of Special Scientific Interest'. Only parts (21.68 ha) of the western half of the common, and of the adjoining hangers compound (now outside the registered common) were notified as a SSSI in 1991 (see map below). The SSSI covered the heathland and grassland vegetation that had escaped conversion to arable and supported the unique and regionally important Silver-studded Blue population. The notification was the result of pressure by Butterfly Conservation and the Save Prees Heath Common Campaign when the common was threatened with sand and gravel extraction. It was this long running and widely supported campaign to protect the site that finally led to purchase of the reserve area. The purchase site

comprised all of the SSSI on the common (ie the majority) as well as undesignated land and that which was in arable cultivation at the time of purchase.



'*The rest of the area is still used as an airfield by the gliding club'*. A grassy strip next to one of the three runways on farmland adjacent to the other half of the common (adjacent to the word 'airfield' on the map) is actually used by a skydiving company.

Vegetation Communities

Grasslands and heathlands being essentially man-made vegetation communities, those that developed on Prees Heath Common before its conversion to airfield then arable fields, would have been the result of centuries of grazing use by the commoners and the landowners. Various issues, not least the unfenced trunk roads with their increasingly busy traffic have meant that fewer gazing animals were turned out onto the common during the the 20th century. There has been no significant grazing for the past 30 years, other than by the abundant rabbits.

From the outset Butterfly Conservation has intended to re-establish heathland and acid grassland on the arable areas of the reserve. We have also hoped to find ways of re-creating the varying topography which provided for wet hollows and bogs amongst the dry ridges and plateaux. But the common's surface was levelled with bulldozers in preparation for the

airfield and land drains installed disrupting the groundwater complex whereby clay deposits maintain the water table quite close to the surface.

The previous article explains the interest and importance of the U1 acid grassland community and presents its case for having that vegetation as the leading management objective and not regarding the site as a 'heathland'. It is clear from a variety of sources that there was historically a substantial amount of heather on the common. These include:

- A pre-WW1 painting of part of the common which shows a large purple expanse, short vegetation on very flat ground, an absence of low scrub and only the occasional tree. This would accord with the general understanding that commons were grazed very hard and most woody growth removed for firewood.
- Postcards at the time of the construction of the WW1 camp which, although they are black and white photographs, clearly show large quantities of heather.
- Colour drawings of the tented WW2 internment camp for around 1,000 so-called enemy aliens on the common in 1940 show heather around the tents.
- The old main runway that runs through the middle of the site still supports significant quantities of both Common Heather, *Calluna vulgaris*, and Bell Heather, *Erica cinerea*, the result of the germination of dormant seed following the hacking up and lifting of the concrete in the 1970s.
- Current and former parts of the common that either lie outside the extent of the airfield or were not converted to arable after WW2 have retained heather dominated vegetation. This is taken to indicate a continuity with the pre-WW2 vegetation of the common. Most notable of these are the patches persisting in the wooded margin at southern end of the Common and the mown areas between hardstandings within the old hangars compound. As well as supporting U1 grassland species significant amounts of both *Calluna vulgaris* and *Erica cinerea*, indicative of a H8 community are present.
- Commoners and local residents who can recall the common before the construction of the airfield describe parts as being 'heather all over'. Aerial photographs from 1940 support this as do aerial photographs from the 1960s showing the parts of the common outside of the developing arable areas.
- The 1924 sale prospectus for the Warren House and Prees Heath describes the place as: "The Heath; a wide area of moorland and comprising some 332 acres is one of the features of north Shropshire and is a delightful, heather-clad, health giving expanse…"

We feel all this firmly supports the conclusion that grassland wasn't the only or dominant vegetation community present over much of the common before the major disruptions of the WW2 period onwards. A more plausible interpretation would be that acidic grassland was the lesser component of a heather dominated mosaic and only in evidence when and where grazing pressure has been heavy enough to create and maintain it. Seeing an abundance of heather as simply the U1 community in decline and starting to become scrub is simply viewing the situation in reverse – that the U1 –type grassland on Prees is actually grazed out dwarf shrub heathland.

Disturbance of the soil by motorbikes and excavations in 2006 within the margins of the wooded area on the western side of the reserve away from the arable cultivations, has resulted in the emergence of heather seedlings and arguably a demonstration of the natural propensity of the site. The high levels of rabbit grazing sustaining the short U1 grassland are by any measure a rather un-natural factor. At present where the rabbit grazing pressure is lower Wavy Hair-grass, *Deschampsia flexuosa*, takes over at the expense of heathers especially as these are still browsed preferentially by the rabbits. Whether it is previous use, atmospheric nutrient deposition or succession, the dense *D.flexuosa* sward appears to be a ready default for the site and perhaps is now a more inevitable succession stage than heather is. However that shouldn't mean that a heather dominance isn't a valid restoration objective.

The historical botanical records cited in the article are certainly evidence of short sward and U1 grassland conditions being present on the Common in the early 20th century – a time during which farm stock grazing would have been declining from its previous levels but rabbit numbers increasing and other uses such as the horse track and 9 hole golf course (that was present for over 22 years) creating the conditions suitable for those particular species.

But we don't believe those species support a case for the common being predominantly or inherently a U1 grassland over the longer term.

Those parts of the reserve purchased in 2006 that were in arable cultivation since ploughing of the heathland in the 1960s and 1970s, amounted to 29ha, approximately half the reserve area. Our aim has always been to restore them to both heathland and grassland vegetation communities, recognising the practical limitations and undesirability of seeking a continuous heather sward. It was also clear that, on these areas, the heathland/grassland communities that had existed previously had been totally destroyed by over 30 years of intensive cultivations, that the prospects for successful restoration were not good given the intensity of the cultivations, and that the work would involve re-creation rather than restoration.

Silver-studded Blues

That the site supports a nationally important population of the Silver-studded Blue *Plebejus argus*, sets our agenda for the place and arguably provides further insight on this vegetation issue. It is the sole surviving site in the Midlands for this butterfly species which in Britain has been found in a number of distinct varieties or eco-types – formerly considered sub-species. These were not only defined by the habitat types occupied (heathland, calcareous dune grassland or coastal limestone grassland) but also by phenotypic distinctions. The Prees Heath version was long considered to be slightly larger and brighter than other 'heathland

types'. The increasing isolation of the population would help explain the development of distinctive traits.

It is a species that requires short, sparse vegetation – as one might expect a U1 grassland to provide, but also requires an abundant supply of its larval foodplants and its associate black ant species. On heathland sites that is *Lasius niger*, which itself requires sparsely vegetated ground providing hot sheltered conditions. The principal larval foodplants of the Silver-studded Blue at Prees Heath are *Calluna vulgaris* and *Erica cinerea*, although it will occasionally use some other plants including Bird's-foot Trefoil, *Lotus corniculatus*. Bell Heather is also a key source of nectar for the species during its flight period in June and July when several hundred can usually be seen.

Nationally it is an emblematic species of lowland heathland, with its stronghold on H8 heathlands in Hampshire and Surrey. There are significant populations on some east Anglian heaths as well as those in Dorset and East Devon, all heather dominated communities. Very significant and large meta-populations are also present on calcareous costal dunes in south-west England and notably, as separate eco-types, in a number of limestone grassland areas: the Isle of Portland, the Great Orme and Pembrokeshire coast. Contrary to the implication in the preceding article, for none of these heathland populations is U1 acid grassland considered to be providing the suitable breeding habitat for this species, though a structural similarity could be drawn between U1 and the calcareous grassland habitats used.

Within the Prees Heath SSSI, between the old runway and the wooded heathland on the western margin, there is a large expanse of very short grassland which may well have been ploughed at some point along with the arable plots. It does not appear to support any heather but has localised, sometimes abundant Birds-foot trefoil. Identified as semi-improved MG6 / U1 grassland in the comprehensive botanical survey of the reserve commissioned in 2007 (Whild Associates 2007), it has been subjected to uncontrolled rabbit grazing for perhaps decades, but has neither fully become U1 grassland or been seen to have attracted the Silver-studded Blues to breed. Given the propensity of U1 under anything other than the harshest of grazing regimes to succeed to MG5 and other mesotrophic grassland though development of a humus layer (Whild Associates 2007) it perhaps gives us the best insight of how a grassland dominated community, even on these acidic soils, will naturally develop.

There is some good news, however, in that U1 does support other notable and nationally declining species of Lepidoptera, including Small Copper, *Lycaena phlaeas*, and Small Heath, *Coenonympha pamphilus*.

A mating pair of Silver-studded Blues on Bell Heather

Management of the SSSI

The SSSI contains a mosaic of U1 grassland, H8 heathland, MG5 grassland, MG1 grassland and W10 woodland. The management task is to conserve the heathland and grassland communities present, including as appropriate the axiophytes listed in the article. One of the axiophytes and a county rarity on the site is Heath Dog-violet, *Viola canina* - over 500 flowers were recorded on one day in 2012.

One task has been to reduce the W10 tree cover bearing in mind that there is a 'blanket' Tree Protection Order in place on the whole of Prees Heath Common. Many trees have been removed with the consent of Shropshire Council, responsible for administering the TPO. Conservation work also includes preventing the further encroachment of Bracken, *Pteridium aquilinum*, controlling scrub and invasive species such as Common Ragwort, *Senecio jacobaea*, and cutting mature heather.

Former arable areas

So what has been done so far to try to re-create heathland and acid grassland communities on the former arable areas, and what are the results?

To go back to the summer of 2006 when the site was purchased, many of the former intensively farmed areas were dominated by Common Ragwort, *Senecio jacobea*, Spear Thistle, *Cirsium vulgaris*, Common Couch Grass, *Elytriga repens* and other ruderal species. We knew that the topsoil had been enriched by the addition of thousands of tons of chicken waste and other manures and fertilisers. Following soil analysis, interpretation of the results and consideration of different options, all the areas were deep ploughed to invert the soil profile, thereby exposing sandy subsoil which would be far more suitable to the establishment of desirable species than the enriched topsoil. Leaving aside the 3.5ha field at the southern end of the site that was still the subject of a tenancy in 2006, it was decided to seed 13ha with heather and other seed and 13.5ha with just grass and wildflower seed. The grass/wildflower seed was sourced from hay meadows at Melverley Farm SSSI in Ash Magna and Chapel

Fields in Tilstock, both a short distance from the site, and the sowings were supplemented in certain areas since 2008 with seed of Common Bent, *Agrostis capillaris*, Sheep's Fescue, *Festuca ovina*, and Red Fescue, *Festuca rubra*. So far it has not been considered necessary to mow and remove the arisings due to the grazing carried out by the many rabbits on the site. These areas now appear to be MG5 grassland, but are changing over time.

One of the grassland re-creation areas in 2013

The heathland re-creation areas received *Calluna vulgaris* heather brash from Cannock Chase and, in one area, from the Long Mynd. In addition *Erica cinerea* seed harvested on site has been broadcast by volunteers, with disappointing results, but a better outcome has been achieved through planting 20,000 *Erica cinerea* plug plants grown from seed harvested on site. Also seed of Wavy Hair-grass, *Deschampsia flexuosa*, has been harvested on site and broadcast on these areas annually over five years – the photograph in the previous article of the East of Runway field captioned '*Partially restored heathland. Note the invasion of grass despite attempts to create heathland*' in fact shows Wavy Hair-grass that was brush harvested on site and sown by our volunteers. There are also thousands of heather seedlings here which are now beginning to grow on despite the attentions of the rabbits. In 2012 and 2013 seed of Common Bent, *Agrostis capillaris*, Sheep's Fescue, *Festuca ovina*, Red Fescue, *Festuca rubra*, Sheep's sorrel, *Rumex acetosella*, and Bird's-foot Trefoil, *Lotus corniculatus* was broadcast on some of these areas – sadly there are insufficient quantities of these species on site to harvest the quantities of seed required, but we ensured the seed was not cultivated but rather harvested from wild sites elsewhere in Britain. Unfortunately weather patterns over the past 18 months have not helped germination and establishment, and some re-sowing may be required.

The heathland re-creation area where most heather seed has germinated and managed to grow on despite the best efforts of the rabbits is the Hangars field (6.5ha). Here a heathland is well

on the way to becoming established, and the photograph below contradicts the claim in the article that *'...the dry sandy soil has not been a great substrate for the establishment of heath'*. The heather has done so well here that in 2012 we were able to brush harvest the seed and use it elsewhere on the reserve.

Re-created heathland on the Hangars field (6.5ha) in 2012

'There are no signs of ants occupying the restoration area at all'. Ants' nests are now being found on the restoration areas, and it is not surprising that, following 40 years of arable cultivations and our one-off deep ploughing, ants and other insects will take time to become re-established. The presence of Black Ants, *Lasius niger*, is an essential requirement to enable colonisation of these areas by the Silver-studded Blue, and we would expect this to happen within the next five years.

A point is well made in the article concerning the evenness of the site, and local people do relate that prior to the construction of the airfield the site was a lot less even. The airfield construction and subsequent agriculture not only saw the land levelled but also many drains installed, and we have not been able to locate a plan of these drains to date. Some of the drainage pipes and chambers were broken when we carried out the deep ploughing but there is no doubt the site is drier now than previously, as indicated by the historic botanical records. A stream used to run along one side of the site but has now virtually disappeared.

The article refers to the large pond that was excavated in 2010, a reflection of the fact that the site sits on top of a huge aquifer, and the area that was chosen for this was the most low-lying

following topographical and hydrological surveys. When the pond was excavated on land that was deep ploughed three years earlier the spoil, which inevitably contained enriched topsoil mixed with sandy subsoil, was spread on the surrounding area, and quickly became dominated by ruderal weeds. Spraying, harrowing and seeding with the same supplemented grass/wildflower mix that had been sown elsewhere on the site was carried out in 2012, and it is too soon to determine how successful this has been - maybe we should have removed the pond spoil from the site, although it was a huge quantity. The point is that further disturbance of the soils can produce undesirable consequences due to the continued presence of the hugely enriched material, and it is hard to overstate the difficulties associated with trying to establish species that like base poor conditions in such soils.

A related point is made concerning experimental plots. Whilst it is true that none of the intensively farmed areas has had no intervention since purchase, some of the margins of up to two metres of these fields were not deep ploughed but have just been mown occasionally and knapsack sprayed with herbicide to control ragwort. These areas have shown no significant change in their composition since 2006, but will continue to be monitored. Another area (1ha) was less intensively farmed being used for silage production, was not deep ploughed and has just received the same minimal intervention since purchase, and so far appears to have changed little. We are planning to do some experimental turf stripping and seeding on part of the SSSI where farming ceased many years ago and is now MG6 grassland.

Conclusion

Butterfly Conservation, working in partnership with other organisations and many people, campaigned for over 20 years to conserve the site, culminating in its purchase, and the subsequent restoration/re-creation work is long-term and has been ambitious, complex and Challenging at many levels, but is well on the way to achieving its aims.

We would like to acknowledge the support we have received from the Prees Heath C the many volunteers who help with practical tasks and monitoring, and our nature conservation agency partners, all of whom are too numerous to name but they know who they are. If anyone would like more information about Prees Heath, and this article only outlines all the work that has been carried out, please contact Stephen, who would also be happy to show people around.

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Charity registered in England & Wales (254937) and in Scotland (SCO39268)

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Crose Mere – water quality and aquatic macrophytes

Mags Cousins

Introduction

Crose Mere forms part of Sweat Mere & Crose Mere SSSI which was first scheduled in 1953 and was listed as a nationally important Grade 1 site in the NCR (Ratcliffe, 1977). The SSSI is included in the suite of wetlands that comprise the Midlands Meres and Mosses Ramsar site. The list of notified features for the SSSI encompasses a wide range of wetland habitats, but here we are only going to look at the open water body that is the mere itself.

Unfortunately, like virtually all the meres of north Shropshire, the open water component of the site is in unfavourable condition due to the loss of submerged and floating aquatic species. The change in species composition is largely due to nutrient enrichment and the current aquatic macrophytes are those that are more tolerant of eutrophic conditions.

Characterisation of Crose Mere Lake

The botanical classification of SSSI water bodies is largely based on work by Palmer (1992) which used data from macrophyte surveys carried out on 1124 standing waters between 1975 and 1988. This method used the aquatic macrophyte flora to characterise lakes into types and was an important source of information for the identification of aquatic communities in the National Vegetation Classification (NVC) (Rodwell et al. 1995). Crose Mere is described as NVC community Eutrophic Standing Open Water: A8 *Nuphar lutea* Yellow water lily. This corresponds to the Habitats Directive Annex I type: H3150: Natural Eutrophic lakes with *Magnopotamion* (ie large pondweeds/*Potamogeton*) or *Hydrocharition* – type vegetation (ie *Hydrocharis morsus-ranae* Frogbit and associates). Since Palmer's early work a much larger dataset with records from 3447 sites has been used to revise the classification of lakes (Duigan et al, 2005). Under the revised classification Crose Mere falls into "Group F Widespread, usually medium-sized, lowland, above neutral lakes, with a limited range of species, but typified by water-lilies and other floating-leaved vegetation".

Current condition

Under the Water Framework Directive (EU, 2000) member states have a requirement to bring lakes into Good Ecological status. Currently Crose Mere is failing to meet good status is a result of eutrophication shown by measures such as high phytoplankton levels and dominance of Chironimids tolerant of high nutrient levels (EA data 2013).

The SSSI is in unfavourable condition according to various attributes and measures (Fig.1.) which follow the Common Standards Monitoring (CSM) Guidance for Standing Waters (JNCC, 2005). Condition Assessment is usually done by Natural England staff, but for standing waters is often based on data acquired from commissioned survey work as it is a relatively specialised job. Crose Mere, amongst numerous other WFD waterbodies, was surveyed by ENSIS in 2012, on a national contract with the Environment Agency.

1. Aquatic macrophytes
    i. Presence/absence of +ve indicators FAIL
    ii. No loss of +ve indicators FAIL
    iii. Community structure – zones, depth distribution, changes FAIL

2. Negative indicators
    i. Presence/absence/change in -ve indicators FAIL
    ii. Invasive aliens PASS
    iii. Non chara algal growth FAIL

3. Water quality
    i. Stable nutrients appropriate to lake type FAIL
    ii. Adequate dissolved O_2 PASS
    iii. Stable pH PASS

4. Additional data
    i. Algal blooms OCCASIONAL FAIL
    ii. Natural hydrological regime POSS FAIL

Fig. 1. Condition Assessment of Crose Mere (NE, 2012)

If we just look at the measures for aquatic macrophytes, for this lake type, in order to pass the site needs to have 6 characteristic aquatic macrophytes present and one broadleaf *Potamogeton* species from the list in Box 4 of the CSM Guidance (JNCC, 2005):

Box 4. Characteristic species of natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation

Characteristic species	**Associates**
Magnopotamion species:	Various submerged species including:
Potamogeton spp:	*Ceratophyllum demersum*
Potamogeton.lucens	
Potamogeton perfoliatus	*Potamogeton pectinatus*
Potamogeton coloratus	*Myriophyllum spicatum*
Potamogeton praelongus	*Zannichellia palustris*
P. x zizii (or any other hybrid with one of the above three species as a parent)	
Potamogeton pusillus	
Potamogeton friesii	
Potamogeton obtusifolius	
Potamogeton berchtoldii	
Potamogeton trichoides	
Potamogeton filiformis	
Potamogeton crispus	
Ranunculus circinatus	
Callitriche spp.	
Chara spp.	

In 2003, Crose Mere had just 3 characteristic species, increasing to four in 2008 and five in 2012; *Chara* sp, *Potamogeton pusillus*, *Potamogeton crispus*, *Lemna minor*, *Lemna trisulca.* These species are from the more nutrient tolerant end of the spectrum so this increase is not as encouraging as one would like. Using this method it is not a requirement to differentiate into species of *Chara* which is not very informative as some species are common and widespread with relatively high tolerance to nutrients.

In 2012 Crose Mere also had three associate species: *Potamogeton pectinatus* and *Zannichellia palustris* (both these come with a health warning as they are tolerant of higher nutrient levels and are sometimes regarded as negative indicators if their dominance is high) and a third associate *Nuphar lutea*.

In the late 1800's Crose Mere used to have other 'more worthy' characteristic species including: *Potamogeton coloratus*, *P. angustifolius*, *P. alpinus*, *P. berchtoldii* and *Nymphaea alba*, the latter was last recorded more recently in the 1960's (Lockton and Whild, 2003). There have obviously been significant changes in the nutrient levels in Crose Mere which has detrimentally affected the aquatic plant community.

Nutrient Status

The key nutrients in the water body which affect the growth of aquatic macrophytes are nitrogen (N) and phosphorus (P) both of which are widely produced by human activities and are at elevated levels in the mere (EA water quality data, 2013 see Figs. 2 and 3). Studies have shown the upper limits for N and P beyond which certain macrophytes can't survive (Barker, 2008) and Crose Mere has regularly exceeded these limits for some considerable period of time.

Reconstruction of total P concentrations from diatom analyses (Bennion, 1997) indicates that Crose Mere has had high P levels since at least 1750, increasing to a peak in the 1880's. However there are encouraging signs that the P levels are now falling, they have even dipped below target levels on several occasions since 2006 (see blue line on Fig. 2). It is hoped to get a full record of the P levels in the sediment since the formation of the lake, from deep cores taken this summer by John Boyle and colleagues at Liverpool University. This will tell us what the natural P levels were in the original sediments prior to anthropogenic influences.

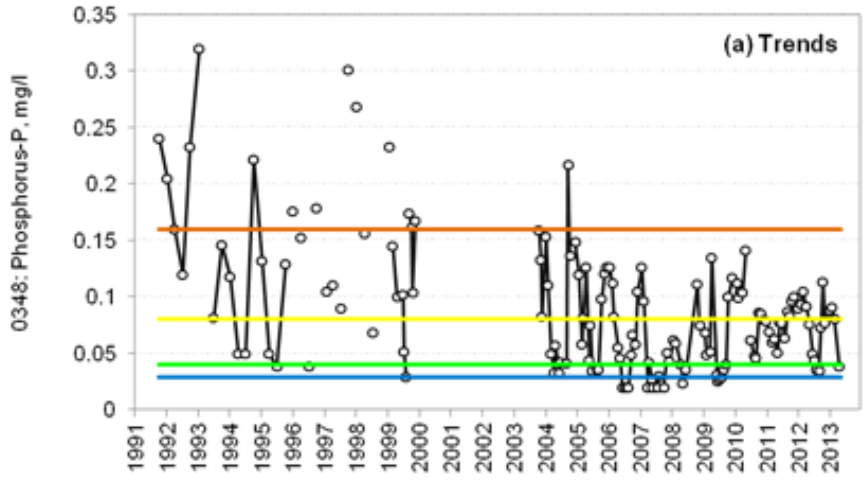

Fig. 2. Total Phosphorus P (EA, 2013) Key for WFD status Blue = High, Green = Good, Yellow = Moderate, Red = Poor)

There has also been a recent gradual decline in N but with a worrying peak in winter 2012/2013 (see Fig. 3.). This could be due to the large amount of rainfall causing surface runoff bringing nutrients with it, a pattern seen across the country this winter. In addition the snow melt after the prolonged covering we received this winter, would have released ammonia accumulated from atmospheric deposition and decomposition of organic matter trapped within it.

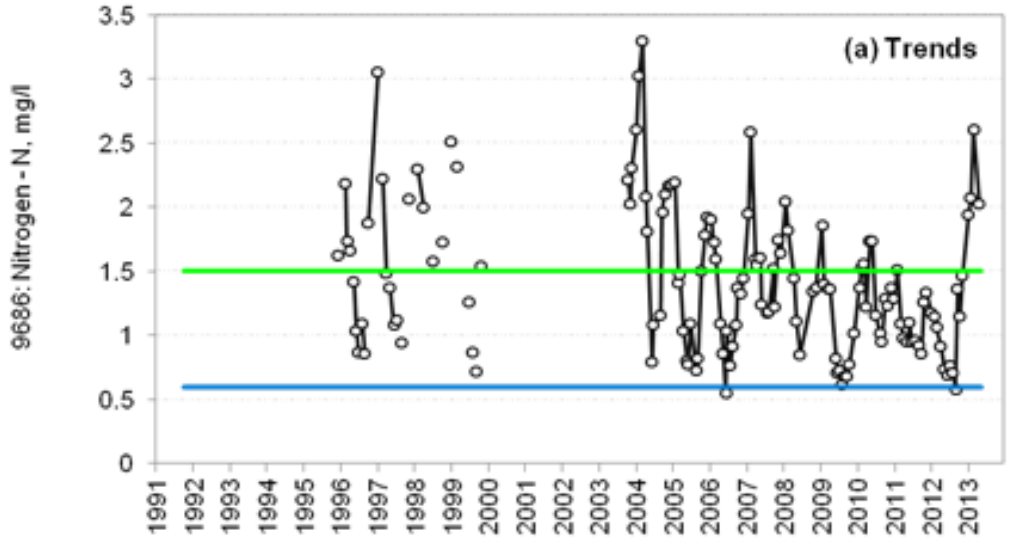

Fig. 3. Total Nitrogen N (EA, 2013) Key for WFD status Blue = High, Green = Good

Conclusions

Improvements in water quality at Crose Mere over the last 8 years in particular have almost certainly led to the increase in characteristic aquatic species, albeit the more tolerant ones, that has been observed during the SSSI condition assessments over this period. The improvement in water quality is probably largely due to changes in land use in the catchment as farms have moved out of intensive dairy (there were four, now only one) and reversion of arable land spread with pig slurry to low input grassland. Nitrate Vulnerable Zone Regulations limiting the use of fertiliser and the rising price of fertiliser may also have had something to do with it. There have also been general improvements on yards eg to collect yard run off and divert it to slurry stores. These land use changes, like the beneficial effects, are slow and incremental, and require incentives that are currently available in the form of the Environmental Stewardship Scheme and Catchment Sensitive Farming capital grants and advice program. There is a long way to go to restore Crose Mere and other water bodies in north Shropshire to favourable condition but we could be encouraged by recent trends.

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Yellow Bartsia at Wood Lane, Ellesmere

Ruth Dawes

Yellow Bartsia (*Parentucellia viscosa*) was first spotted and identified by Allan Dawes on a working party at the Wood Lane Shropshire Wildlife Trust Reserve in August 2010, when over 40 flowering plants were seen (photos p.35). The species continues to thrive and spread amongst marshy grassland on this sandy site and three years later good numbers are present, scattered over many metres.

There are few previous records for Shropshire. Sites include the sandy soil of Prees Heath in 1983, the canal towpath at Rednal in 1998 and a woodland track in the wetland of Rednal Moss in 1999, but the species appears to have been short-lived on these sites.

Parentucellia viscosa is a hemiparasitic annual, now placed in the *Orobanchaceae* family, but previously in the disparate *Scophulariaceae* family. It is an uncommon species, scattered and often coastal in Britain, particularly occurring in damp slacks in fixed dunes and reclaimed heathland. Yellow Bartsia colonises new sites readily and thrives on disturbance. It has increased northwards and eastwards in Britain, apparently largely through introductions in seed mixtures (*New Atlas 2002*). Conversely, it seems to be declining in its native places in the south west, perhaps due to changes in management of old pastures. Other areas of natural distribution include southern and western Europe northwards to northern France, North Africa, Azores, Canaries and Asia.

It is a lowland species, appearing to need mild winters, so it is interesting that it has survived so well at Ellesmere in the hard winters from 2010 to 2013. It is believed to have arrived here naturally, rather than by use of seed mixtures.

I am grateful to John Hawkins, warden of the Wood Lane Reserve, for allowing me special permission to visit the site during an August 2013 working party to monitor the plant communities. (Access to the plants is not freely available due to disturbance to the birds.) As *Parentucellia viscosa* seems to only grow from seed, it is difficult to know what its future is at this site, but as the marshy grassland is not cut until after the bird breeding season, I hope that the plants continue to thrive.

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Obituary of Elizabeth Roberts – 1939 – 2013

Ruth Dawes

Elizabeth (Betty) Ikin was born in Oswestry in 1939. She attended Adcote School, Baschurch and a college near Malvern. She then worked in her father's office, Norman R Lloyd and Co, where she met her husband, Alan Roberts.

She had a lifelong interest in nature and was an accomplished botanist, artist and photographer. Elizabeth loved winter tree outlines and provided some exquisite line drawings for the Montgomeryshire Flora. She was also a talented cartoonist and would quickly dash off some fun illustration, which was long remembered by those of us who were students with her. Elizabeth was a dedicated contributor to both the *Shropshire Flora* and *Montgomeryshire Flora* records, particularly from the 1970s to the 1990s, botanising with Marjorie Wainwright and the late Doris Pugh and Mary Hignett.

Always a keen herbalist, her family say they "escaped most symptoms of most coughs and colds through doses of sage tea and cider vinegar."

Elizabeth made many records on her home ground around the Racecourse and Selattyn and found *Coeloglossum viride* (Frog Orchid) at Llawnt in 1979. She also spotted many plants in Oswestry town, *Lepidium latifolium* (Dittander) on the pavement being a memorable one in 1989 and *Ononis repens* (Common Restharrow) at the old station in 1994. She discovered *Anacamptis morio* (Green-winged Orchid) in Treflach in 1993 and was kind enough to make sure I knew where it was. I was delighted to re-find plants in 2012.

One of my last lovely memories of an outing with Elizabeth was in the late 1990s being taken in her people carrier with Mary Hignett and Marjorie Wainwright on a frog orchid hunt. Down the steep one track lanes we went until in a "*Last of the Summer Wine*" moment we met a farmer on his tractor with two sheep dogs tied each side with string. The vehicles and dogs eventually passed one another with much gentle rural humour. Alas, the habitats had changed, no frog orchids were found, but the day ended with the discovery of an ephemeral sprig of *Botrichium lunaria* (Moonwort) in Elizabeth's own small colourful wild flower meadow. Rest in peace, Elizabeth R.

The Ramblings of a Shropshire Naturalist EA Wilson

Mags Cousins

This is the second of several extracts from the writings of Edward Wilson who was a biology teacher at Ellesmere College. He was a keen naturalist who took detailed and interesting notes of his field excursions in Shropshire. He died in 1985, and his diaries and notebooks are now kept at Shropshire Archives in Shrewsbury. His plant records were computerised onto the Shropshire Flora database, and were published in the Shropshire Botanical Society newsletter, 2002.

6,320 MIDGES COMMIT SUICIDE

The fresh green leaves of the Wild Arum or Cuckoo Pint (*Arum maculatum*) appear in the hedgerow verges as the first welcome signs of spring, although its flowers are more tardy and do not appear for another month or so.

The inflorescence has a most complex structure. An expanded spathe narrows down to a closed, oval compartment which contains both male and female flowers, both reduced to an absolute minimum. The male flowers consist of anthers only, packed tightly together around the base of the columnar spadix; while the female flowers below them consist of ovaries having short stigmas, also packed closely together. Above the staminal flowers there are stout hairs which project slightly downwards and close the compartment. The spadix continues upwards and ends as a purplish poker, set against the green background of the spathe.

The way in which this apparatus is said to work is as follows:-

Tiny midges enter the flower by pushing aside the barrier of hairs, and then feed on any pollen which has already been shed. Actually the stigmas become receptive before the stamens are ready, but when the midges try to leave they find they cannot push past the hair-barrier, as the hairs can only be pushed downwards, and so they are forced to stay. As they crawl around, the stamens shed their pollen; some drops on to the stigmas while more is transferred by midges. When pollination is completed the barrier of hairs withers and the midges escape. As with so many 'sensible' explanations this is only partially true, because the flies can come out, and do so when the growing plant is tapped, so that it seems more probable that intoxication may be the cause of many of them remaining below.

If the Wild Arum inflorescences are examined it will be found that the majority of insects present are 'Owl Midges' (*Psychoda phalaenoides*). One strange fact is that they are all females, which suggests that they may be parthenogenetic, i.e. the eggs develop without the need for fertilization.

On one occasion I found an inflorescence in which the closed chamber was completely filled by a solid, black ball, composed of dead owl midges. These were washed out with alcohol into a Petri dish and counted - there were 6,320: C. H.Wallace Pugh kindly wrote about this to Dr. H. Jung of Dusseldorf, the leading authority on the family, who replied that he also had two spathes of *Arum maculatum* which were absolutely filled with females of *Psychoda phalaenoides* but agreeing that these numbers were rare. The only explanation which would seem to fit the case is that these Owl Midges decided on a mass suicide.

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Yellow Bartsia *Parentucellia viscosa*, Wood Lane SWT Reserve, photo Ruth Dawes, Aug 2013

Yellow Bartsia *Parentucellia viscosa* habitat at Wood Lane SWT Reserve